How Predators Use Technology

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Objectives
After this session, you will be able to:
- Identify various Internet technologies and components
- Describe how selected Internet technologies are used to facilitate crimes against children
- Identify ways predators may try to conceal their activities and collections

Technology-Facilitated Child Exploitation
- Child pornography
- Online enticement of children for sexual purposes
- Trafficking of children for sexual purposes, i.e., prostitution
- Sex tourism
The Impact of Technology

What’s Technology Got To Do With It?
- Enables predators to have virtual playgrounds: access to real children w/out much fear of being identified
- Ease of “tracking” victims via search engines, info posted by children.
- Grooming techniques used by predators aided by online profiles created by children - inside knowledge of potential victims’ likes/dislikes, issues, etc.

Challenges Presented by Technology-Facilitated Crimes:
- Anonymity of Internet makes offenders more difficult to locate
- Emboldens offenders’ actions
- Provides offenders w/ online communities
  - share images
  - exchange information
  - validate members’ behavior
  - remove social stigma
  - desensitize members to the physical/psychological damage being done to children involved
Impact of Technology

- Law enforcement had nearly succeeded in stemming hard-copy trafficking in 1980’s
- Then, the advent of personal computers and the Internet drastically altered both the reach and the threat of the crime

Child Pornography: Computers and the Internet

- Computers and the Internet revolutionized the child pornography industry
  - Easy to produce
    - No worry about developing film
  - Easy to store
    - Store millions of image on computer media
  - Easy to conceal
    - No worry about the stash being found
  - Easy to transfer
    - No more mail-order or trading pictures in person

Impact of Technology

- Access to vast quantities of images
- Instant availability of images
- Ease of production of new images
- Ease of conversion, circulation of pre-existing magazine or film images
- Seeming anonymity
- Proliferation of sharing communities
Impact of Technology

- Manipulation and morphing of images
- Exacerbation of victimization
  - Collections are larger
  - Can be stored in multiple locations worldwide
  - Images are harder to stamp out
  - Viewed more often and potentially over much longer time

Challenges presented by on-line cp cases:

- Single website can maintain all content on different computers in multiple jurisdictions
- Criminals operating sites can do so from yet another jurisdiction.
- One might report unlawful Internet activity (i.e., existence of CP website) to a local agency far from apparent location of the site.

The “Internet” and Related Technologies
What is the Internet?

- A network of computers?
- A network of networks?
  - It is a network of millions of networks
- World Wide Web
  - The most familiar part, perhaps, but not coextensive with the Internet
- Any technology, network, or computer that uses TCP/IP to communicate

The Internet

- World Wide Web (the Web)
- E-mail
- Instant messaging (IM)
- Webcam / Internet Telephone (VoIP)
- Peer-to-peer (P2P) networks
- Legacy Systems
  - Usenet Newsgroups
  - Telnet and File transfer (FTP) sites
  - Internet Relay Chat (IRC)
  - Bulletin boards

What Kinds of Computers Can Be on the Internet?

- Mainframes
- Laptops
- Vehicles
- Personal computers
- Cell Phones
Internet Distribution

- E-mail
- File transfer protocol (FTP)
- Bulletin and message board systems
- Newsgroups
- Chat rooms

Internet Distribution

- Web sites
- Web cams (broadcast media)
- E-groups
- Instant messages
- Peer-to-peer (P2P) networks

Web 2.0

- Interactive Internet communities
- Social networks
- Blogs
- Wikis
- Video or photo sharing sites
- Online role-playing games
- Virtual worlds
E-mail

- Transmission of text messages and attached files
- Simple Mail Transfer Protocol (SMTP)
**E-mail**

- May be sent to child as part of grooming process
- Considered risky by “seasoned” users, for danger of unwittingly sending e-mails to undercover investigators

**FTP**

**File Transfer Protocol**

- Most often used by webmasters to publish files on the Internet
- Provides a drag-and-drop service for copying files to a server
- Typically, download access is anonymous, but an account is required to upload files
**File Transfer Protocol**

Files on Users' Computer

Files on Server

**Bulletin and Message Boards**

**Bulletin Boards (BBS)**

- Predate the Internet and Web
- Similar to newsgroups, but tend to be in real time, allowing contributors to converse
- Can be hosted on a standard home computer
- May be accessed directly via modem w/o going through Internet
- May host discussions that provide advice to seekers of CP
- May be monitored by system admins who filter postings
Message Boards

- Similar to Bulletin Boards
- Arranged by topic and subtopic
- Discussions may include advice on how to find CP
- May also be monitored by system admins
- Some require a password or invitation to view contents
  - All require registration to comply with COPPA

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Newsgroups

- Sites stored on news servers that allow contributors to discuss particular subjects
- Network of newsgroups called "Usenet"
- Network News Transfer Protocol (NNTP)
- Allow posting of text, images, etc., and responding to posts

Newsgroups

- Usually no central authority
- Password may be required, and some filter through moderators
- Specific CP groups give members forums to discuss their sexual interests in children, and to post CP
  - Ex: alt.binaries.pictures.erotica.pre-teen
Newsgroups

- Most commercial servers block access but some servers do provide access
- User runs risk of having identity captured by cc payments or server’s IP records (unless true IP concealed by user)

Chat
Chat Rooms

- Services that permit users to engage in real-time conversations and exchange digital files
- Internet Relay Chat (IRC)
  - Channels dedicated to CP file sharing
- Many open to anyone to log into, some are private
- May use moderators

Interactive Chat - IRC

Chat Rooms

- May be used to locate potential victims
- May be password-protected
- Open rooms avoided by “seasoned” child pornographers because of infiltration by undercover investigators
Chat Rooms

Chat rooms

- Twist: “Chatroulette”
- Random chats with strangers anywhere in world
- Significant amount of use by predators exposing themselves or looking for, or grooming, minors

Chatroulettemap.com
The “Web”

Web Pages and Sites
- May have text, graphics, audio, video, links to other pages or sites
- May contain CP images only or have such images among images of adult pornography
- May be temporary, advertised on pedo BBS’s

Web Pages and Sites
- May be given innocuous names (“volleyball”) or other codes (“ch*dp*rn”) to evade screening
- May be flooded with hits and then closed down
- Often contain Zip archives, the password for which is later posted on a BBS
Web Cams
- Video cameras that permit live images to be displayed via a Web page
- CP images may be broadcast in real time
- Viewers can make online requests for certain images, or for particular sexual activities with children

E-groups
- Established to share info on topics of common interest
- Subscription required
- Besides e-mail, may offer chat rooms, BBSs, and/or central home pages

E-groups
- Specific CP groups permit members to receive and share images, exchange info about new sites
- Some appear on reputable servers but are shut down when detected
- May use code names or camo the CP images among adult porn
Child Pornography Rings
- Predated Internet but generally involved only producers
- Concept has grown to include consumers
- By enabling consumers to re-trade images, the Internet has, in effect, made them distributors
- Example/Case study – The “Wonderland Club”

Instant Messaging

Instant Messaging (IM)
- Similar to chat rooms, but permit private conversations with nominated contacts (buddy list)
- Once connection established, direct contact between users possible w/o need for a central server
Instant Messaging (IM)

- Instant Messaging often allows the sharing of pictures and files
- IM can also combine the use of microphones and webcams
- Conversations can be saved or printed

P2P
<table>
<thead>
<tr>
<th>Peer-to-Peer Networking</th>
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<tbody>
<tr>
<td>Peer-to-Peer Networking is used to download files from the Internet including:</td>
</tr>
<tr>
<td>- Music</td>
</tr>
<tr>
<td>- Movies</td>
</tr>
<tr>
<td>- Books &amp; Magazines</td>
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<tr>
<td>- Documents</td>
</tr>
<tr>
<td>- Pornography</td>
</tr>
<tr>
<td>While not always illegal, it often is.</td>
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</tbody>
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<table>
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<tr>
<th>P2P and Child Pornography</th>
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<tr>
<td>Users share the files on their computer with others on the network</td>
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<td>A user may only share part of a file with another</td>
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<tr>
<th>Peer-to-Peer Networking</th>
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<tr>
<td>Networks in which computers are equal partners using common file-sharing programs, like BitTorrent, that allow users to connect directly to each other’s computer hard drive to search for and exchange files of all kinds</td>
</tr>
<tr>
<td>Reduce reliance on search engines</td>
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<td>Transfer data faster</td>
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Peer-to-Peer Networking
- Facilitates file-sharing among CP users
- Rapidly evolving and popular technology
- Virtual networks allow closed groups to trade images

Client-Server vs. Peer-to-Peer

How Gnutella Works
- Query: "Baby Go Home.mp3"
- 5-7 levels depending on “time to live”
- “I’ve got it!”
- 8,000 - 10,000 computers
BitTorrent

Peer-to-Peer Networking

The Process
- John installs the P2P program
- He downloads a Torrent file
- John downloads a movie
- The movie is ready for viewing
- His computer is likely sharing the file with others

Peer-to-Peer Networking

Step 1: Jim downloads the software
Peer-to-Peer Networking

Step 2: Jim searches for the movie and downloads a torrent file

Peer-to-Peer Networking

Step 3: Jim begins to download the file

Peer-to-Peer Networking

Step 4: Jim is able to play the movie and his computer continues to share it with other users on BitTorrent
Social Networks or Social Media

Social Networking
Social Networking

Some Social Networking features:
- Posting Messages (public or private)
- Personal Profile
- Picture Sharing
- Interactive Games
- Instant Messaging
- “Classified” Advertising
Photo Sharing Sites
- Examples: Flickr, Picasa, PhotoBucket and thousands more
- Allow users to create accounts for sharing of photos – may be public, require a code, or a specific link to access them
- Easy to establish and download from without giving away personal information

Online Dating Sites
- Often used to find more than just someone to date
- Children often find their way onto these sites out of curiosity even though it’s required that users be 18+
  - One 14-year-old boy’s profile headline was set to “young hot and love three ways”. He claimed to be 18

Teen-only Sites
- Several websites for teens have moderated chat rooms which more or less prevent infiltration by predators
  - However, some have little or no moderation
  - It’s difficult and even impossible to moderate each individual chat conversation
- A search on Answers.com shows that teens are looking for online dating sites. The lack of availability is pushing them to adult-only sites
Ancestry.com

Myfamily.com

MMORPG’s and Virtual Worlds
MMORPG’s

- Massively Multi-player online role-playing games
- Ex: World of Warcraft
- Another way for predators to establish contact and build online relationships with potential victims
  - Children may be particularly vulnerable

“Virtual Worlds”

- A partial list:
  - Coke Studios
  - Cybertown
  - Disney's Toontown
  - Dreamville
  - Dubit
  - Habbo Hotel
  - The Manor
  - Mokitown
  - Moove
  - Muse
  - The Palace
  - Playdo
  - Second Life
  - The Sims Online
  - Sora City
  - There
  - TowerChat
  - Traveler
  - Virtual Ibiza
  - Virtual Magic Kingdom
  - Voodoo Chat
  - VPchat
  - VZones
  - whyrobbierocks
  - Whyville
  - Worlds.com
  - Yohoho! Puzzle
  - Pirates

Ex: Second Life
Avatars in Second Life

Second Life

Ever wanted to fly?
Second Life
Online Lectures, Meetings, Rallies

Virtual Worlds
- Children posing as adults may be found in virtual worlds
- Slustler, a pornographic magazine, is sold in Second Life
- Characters can have virtual sex – and even “rape” – in Second Life
- “Virtual browsers” can be used there as well

“Private” Room in Virtual World
Cell Phones and “Smart” Devices

Cellular Phones
Modern cell phones have a variety of functions, including:
- Phone Calls
- SMS (short message service)
- MMS (multimedia message service)
- Cameras
- File Storage
- Internet Access, Email, Apps

Cellular Phones
SMS (short message service)
- 160 characters or less
- Sent from cell phone to cell phone by way of towers and servers
- If recipient phone is off, a message will be saved until the phone is turned on
Cellular Phones

MMS (multimedia message service)
- Like SMS, but allows sharing of pictures, video, and/or audio
- Usually an additional feature on phones

Ways of Trying to Conceal Activities or “Hide” Data

Ways of Trying to Hide Data

- Changing File Extensions
- Password protection schemes
- Encryption
- Steganography
- Anonymous remailers
- Proxy servers
Changing File Extensions

Password Protection

- Computer/BIOS Passwords
- Encryption Programs
- Archive Passwords
- Document Passwords

Encryption

- Sometimes used as security measure to prevent others from accessing file data.
- Example: "Pretty Good Privacy"
- Scrambles file data so that it is unusable.
Steganography – Example

WiFi Networks

- Using others’ wireless networks can provide great security and make it appear as though someone else was the predator or collector
- Publicly accessible at restaurants, stores, major urban areas
- Unprotected networks in homes, especially apartment buildings
Credit Cards

- Since child pornography is often sold, most pornographers use payment methods other than their credit or debit card
  - Pre-paid credit cards
  - Online currency (such as the Linden dollar in Second Life)

Erasing Data

- Putting files in the Recycle Bin and emptying it leave the files on the user's computer
- However, many programs allow the user to overwrite the space, thus deleting it permanently
  - New Macs come with preinstalled software that can overwrite free space 7 times (as required of Pentagon computers). The software also allows a 21x overwrite

Anonymizers

- Attempts to make Internet activity untraceable
- Proxy Servers
  - Allows bypass around security and parental controls
  - Mask the users’ IP address
  - Free
  - Protocol-specific – proxies for email, web, and P2P operate separately
Tor & Onion Routers

- Available for free
- Relays communications through various computers on the network
- Encryption is multi-layered (like an onion)
- Tor blocks P2P network access
- Usually very slow

How Tor Works: 1

Alice

Step 1: Alice's Tor client obtains a list of Tor nodes from a directory server.

Jane

Dave

Bob

How Tor Works: 2

Alice

Step 2: Alice's Tor client chooses a random path to the destination server. Onion links are encrypted, red links are in the clear.

Jane

Dave

Bob
Tor & Onion Routers

And then there’s the “Cloud”

Questions?

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